

ABSTRACT OF THE DISCLOSURE

A solar-powered fluid heating system, having a thermal collector, a unitary water conducting assembly, and heat retention and efficiency components that are all included in a framework so as to provide a unitary construction. The framework includes a frame structure having non-conductive receptacles for receiving the edge marginal regions of the thermal conductor, so as to be free-floating to allow for thermal expansion and reduction of stresses on components as well as the heat resistant and enhancing components. The arrangement within the frame structure includes a dimpled or waffled metal water conducting assembly that rests upon a layer of insulation material held in the framing structure by a back sheet. The opposite side of the water conducting component is a solar selective sheet having a blackened surface upon which a thermal collector is disposed. The thermal collector includes an array of solar cells, deployed in either serial, parallel or a combination thereof, in an electrical array and which is encapsulated or enclosed by a pair of transparent sheets. A sheet of film is placed on top of the thermal collector, followed by a low glass panel arranged in fixed, spaced-apart relationship with respect to the film sheet. The edge marginal regions of all of the above components are carried in the side and ends of the frame structure and are held in position by spaced-apart, non-conductive receptacles for holding edge marginal regions of the components, and the receptacles are in spaced-apart relationship, so that the components are organized to be held in an augmenting and efficiency enhancing arrangement.